

REFLECTIONS ON PREHOSPITAL CARE

Management of eclampsia in the prehospital setting

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Eclampsia is an uncommon and serious condition, particularly in the pre-hospital setting. Immediate treatment is required and should include airway control, administration of oxygen, anti-epileptics and magnesium, hypertension control, and urgent delivery of the baby.

CASE REPORTS

Case 1

A call was received to a 34-year-old unconscious pregnant woman. On arrival the patient was found to be conscious, with normal heart and lung sounds, a blood pressure of 130/90 mm Hg and a pregnancy of 28 weeks duration. The husband reported hearing loud snoring when he and his wife were sleeping, and he was unable to wake her. The pregnancy was problem-free except for a small bleed during the early stage. During questioning, the patient developed a generalised tonic-clonic seizure. Diazepam 5 mg was administered and she was taken to hospital with a diagnosis of eclampsia without complications.

Case 2

A 25-year-old pregnant woman's family called for assistance when the patient suffered seizures. On arrival the woman appeared to be 34 weeks pregnant and presented with hypertension but did not otherwise fulfil the criteria of pre-eclampsia. The family said that she had undergone an episode of strange movements that had lasted 2 min. The patient was conscious but exhibited a tendency to sleep. The blood pressure was 140/90 mm Hg and there were no other abnormal findings. During the transfer to hospital, the patient suffered a generalised tonic-clonic seizure lasting 30 s. She was treated with 3.5 g of magnesium sulfate diluted in 250 ml of crystalloid. The transfer was completed without additional complications.

DISCUSSION

The hypertensive disorders of pregnancy include hypertension before pregnancy, chronic hypertension, and gestational hypertension. When gestational hypertension is accompanied by proteinuria, the disorder is termed pre-eclampsia. Eclampsia is defined as the occurrence of seizures in women with pre-eclampsia.¹ Eclampsia affects 1 in 2000 pregnancies in the UK with a mortality rate of 1.8%.² In the last two decades, it has been recognised that pre-eclampsia and eclampsia are part of a multisystemic syndrome characterised by vasoconstriction, metabolic changes, endothelial dysfunction, activation of the coagulation cascade, and increased inflammatory response.¹

The clinical signs and symptoms of severe disease in patients with pre-eclampsia include blood pressure >160 mm Hg systolic or >110 mm Hg diastolic, or an increase of 30/15 mm Hg from baseline (as in case 1); proteinuria > 5g/24 h; elevated serum creatinine >1.2 mg/dl (106 µmol/l); grand mal seizures (eclampsia); pulmonary oedema; oliguria <500 ml/24 h; microangiopathic haemolysis; thrombocytopenia, platelet count <100 000; elevated hepatic enzymes; oligohydramnios; and symptoms suggesting end-organ involvement such as headache, visual disturbances, and epigastric pain.³ The HELLP syndrome is a variant of pre-eclampsia, and is characterised by haemolytic anaemia (H), elevated hepatic enzymes (EL), and low platelets

(LP). Outside of hospital some of this information may be obtained from patient-held clinical records.

The initial treatment for eclampsia includes maintaining oxygen delivery to both mother and fetus, minimising the risk of aspiration, treating the seizure, and controlling hypertension. Invasive haemodynamic monitoring should be considered only for patients with complications such as pulmonary oedema or continued oliguria, and in most cases volume replacement therapy is not indicated except to maintain urine output. In such cases the management of eclampsia is similar to that of other patients with oedema who are not pregnant.

Hydralazine is the first choice of drug for blood pressure control in the emergency setting (5 mg intravenously initially, then 5–10 mg at 10–20 min intervals). Other drugs used for acute hypertension in pregnancy are labetalol, nifedipine, diazoxide or sodium nitroprusside. Recently another drug, urapidil, has also played an important role in the control of blood pressure.

Magnesium sulfate should be used as the first-line drug for the control of seizures. In the cases described here a smaller than normal dose of drug was used. Typically the dose administered is 4–6 g intravenously in 5 min followed by an infusion of 1–3 g/h. To monitor the magnesium levels, the patellar reflexes can be assessed regularly; when these are abolished the infusion should be stopped. Phenytoin or diazepam are also used to control seizures. The final step in the treatment involves termination of the pregnancy with the least harm to the infant and mother.⁴

Intracerebral haemorrhage has been identified as the final event in over 50% of patients who die. The mother is also at risk from repeated seizure activity, which may lead to aspiration pneumonia, pulmonary oedema, acute renal failure, or hypoxaemia and acidaemia. Finally, cardiovascular collapse may occur following over-aggressive treatment or massive intracerebral haemorrhage. The effects on the fetus are similarly dramatic. Combined with compromised uteroplacental perfusion caused by the disease, multiple seizures can result in a 10–28% fetal mortality rate.

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REFERENCES

- 1 Roberts JM, Gammill HS. Preeclampsia. Recent insights. *Hypertension on line* Oct 17, 2005. doi 10.1161/01.hyp.0000188408.49896.c5. <http://hypertensionaha.org>.
- 2 Thompson S, Neal S, Clark V. Clinical risk management in obstetrics: eclampsia drills. *BMJ* 2004;**328**:269–71.
- 3 Frishman WH, Veresh M, Scholcker SJ, et al. Pathophysiology and medical management of systemic hypertension in preeclampsia. *Current Hypertension Reports* 2006;**8**:502–11.
- 4 Henderson SO, Norton E. Hypertensive disorders of pregnancy. In: Harwood-Nuss A, eds. *The clinical practice of emergency medicine*, 3rd ed. Philadelphia: Lippincott Williams & Wilkins, 2001.